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ABSTRACT

The range of cognitive gains made by low-income preschool children in the home-based Mother-Child Home Program is discussed as to the causes of the wide variability found. At the end of one year (October 1967 to May 1968) in the program, 33 low-income preschoolers made an average Stanford-Binet IQ gain of 17 points. The varibility within this group ranged from a gain of 33 points to a loss of 7 points. The average IQ gain for 26 similar children new to the program in the following year (October 1968 to May 1969) was approximately 11 points, with a variability ranging from a gain of 24 points to a loss of 4 points. The first group was divided, at the 17 mean point gain in IQ, into High Gainers and Low Gainers (from -7 tc 8 points). The seven children who were identified as Low Gainers evidenced a common pattern of verbally related behavior within the intervention itself, which appears to be characterized by social and cognitive immaturity and by a relatively frequent negative affective tone; six of the seven were also related by an indication of unhappiness in family relationships. It is felt that the factors, beside the program itself, which are associated with high and low cognitive gain, should be identified. Nine case studies of children in the first year of the program are given as illustrations. (DB)

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INDIVIDUAL VARIATION AMONG PRESCHOOLERS IN A COGNITIVE INTERVENTION PROGRAM IN LOW INCOME FAMILIES[1]

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Phyllis Levenstein, Ed.D.

The range of cognitive gains made by low-income preschool children in two years of the home based Mother-Child Home Program has brought into sharp relief the importance of remembering that groups are made up of individuals. There has been a tendency to speak of the low-income child, or the middle income child, as if all children in a socio-economic status group fell from the same cookie cutter, to use Elizabeth Herzog's vivid analogy (Herzog, 1967). Yet there are vivid differences among the characteristics, including cognitive, of many of the children who are included in such groups, regardless of group "central tendencies". For example, one team of investigators evaluating the psycholinguistic performance of low-income children has reported the diversity found in their test scores; Sigel and Perry (1968) noted evidence in the psycholinguistic test scores of 25 "culturally deprived" nursery school children of the wide variability within this group, both quantitatively and qualitatively. I would like to contribute more evidence to encourage a move toward individualizing group data.

At the end of one year in the Mother-Child Home Program (October 1967 to May 1968), 33 low-income preschoolers, equated for low-income housing, had made an average Stanford-Binet IQ gain of 17 points, from a group mean IQ of 84.9 to an IQ of 101.9. (See Table I. C_1 and C_2 Groups refer to Comparison Groups not exposed to the full intervention.) But the great variability within the group from this mean gain ranged from a gain of 33 IQ points, in a three year old girl, to a loss of 7 points, in a two year old girl (Amy). The average IQ gain for 26 similar children new to the Program in the following year (October 1968 to May 1969) was approximately 11 points, from an IQ of approximately 90 to an IQ of approximately 101 (all preliminary results), similar to the post-test results of the previous year. And as in

TABLE 1

INTELLIGENCE TEST MEANS, EXPERIMENTAL (E), COMPARISON$_1$ (C_1), AND COMPARISON$_2$ (C_2) GROUPS

Test	E Group			C_1 Group			C_2 Group			Difference E and C_1 Groups		Difference E and C_2 Groups	
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	t[a]	Significance	t	Significance
Pretest													
Children — C or SB[b]	33	84.9	10.5	9	87.4	11.0	11	92.0	9.7	.62	n.s.	1.92	n.s.
Children — PPVT[c]	29	76.8	7.4	9	82.6	8.0	10	84.1	12.9	1.93	n.s.	2.12	$p < .05$
Mothers — PPVT	26	82.5	16.4	9	86.0	15.2	10	87.8	13.9	.55	n.s.	.88	n.s.
Post-Test													
Children — C or SB	33	101.9	14.7	9	88.4	9.5	11	94.0	8.8	2.55	$p < .05$	1.66	n.s.
Children — PPVT	29	89.0	12.6	9	78.6	12.3	10	88.8	13.0	2.13	$p < .05$	.04	n.s.
Mothers — PPVT	26	84.2	13.6	9	82.8	9.3	10	87.5	14.8	.29	n.s.	.61	n.s.
Change													
Children — C or SB	33	+17.0	10.6	9	+1.0	9.0	11	+2.0	9.3	4.03	$p < .001$	4.08	$p < .001$
Children — PPVT	29	+12.2	12.3	9	-4.0	9.6	10	+4.7	16.3	3.51	$p < .01$	1.48	n.s.
Mothers — PPVT	26	+1.8	8.7	9	-3.2	11.8	10	- .3	7.4	1.3	n.s.	.65	n.s.

[a] Two-tailed test.

[b] Cattell or Stanford-Binet.

[c] Peabody Picture Vocabulary Test.

1967-1968, the variability was very large, from a gain of 24 points, in a two year old girl (Flora), to a loss of 4 points in a two year old boy (Chester).

With the variability already obvious in the 1967-68 test results, the Verbal Interaction Project (the investigation which created and is studying the Mother-Child Home Program) tried to track down the group variables associated with the group diversity. The 33 children were divided into High Gainers (at or above the group mean) and Low Gainers (below the group mean), and the characteristics of the groups were studied in relation to the high or low status of the group gain. Almost no significant differences were found between the groups on a large number and range of variables, ranging from children's sex and age, and the background characteristics of the child's family, to such intervention variables as number of Home Sessions. Similar data for 1968-1969 have not yet been analyzed, but inspection suggests that the results will not differ substantially.

What then causes such wide differences in the responses of some children to an intervention Program which was obviously successful (at least on a short range basis) for most of the subjects? Why did a few children gain relatively little, or even regress cognitively? And why did a few children make IQ gains in amounts which can be conservatively described as spectacular? It is the aim of this report to share with you not only the presence of considerable variability in our data, but also some of the guesses we are beginning to make about some of the sources of the wide IQ gain variation -- and our continued questions about the sources of others.

Before going further, it is necessary to describe briefly the Verbal Interaction Project's cognitive intervention, the Mother-Child Home Program (described in more detail in Levenstein, 1969a and 1969b). As the name suggests, it has focused, since its inception as a pilot project in 1965 (Levenstein and Sunley, 1968) on the low-income mother-(preschool)-child dyad. From two years of experience with the Program, and almost half of a third, we are beginning to realize that although the focus on the mother-child dyad remains indispensable, the total family is often involved in the intervention. But the mother-child dyad is central to

the intervention. The Program, utilizing the cognitive growth model of Bruner's(1966) "instrumental conceptualism" consists mainly of stimulating, in Home Sessions, verbal interaction within the dyad around verbal interaction stimulus materials, or "VISM". In spite of the formidable label, these are commercially available toys and books, selected to fulfill a large number of criteria formulated after the pilot project, and permanently assigned to the two or three year old preschoolers. The VISM set the non-didactic tone of the intervention, and the interveners are called "Toy Demonstrators". In the first full year of the Program, 1967-1968, professional social workers pioneered this role in determining the effectiveness of the Program and in operationalizing the concept of "verbal interaction". To achieve the latter, the verbally encouraging behavior of child, mother, and Toy Demonstrator was rated and recorded for every session; the categories of the Toy Demonstrator's behavior (the children's IQ gains having testified to their effectiveness) were then translated into "verbal interaction techniques" guide sheets written for every VISM (12 books, 11 toys) used in the Program after the first year. These were then utilized to aid the social workers in training and supervising non-social worker interveners to become Toy Demonstrators. The new Toy Demonstrators, during 1968-1969 and in the current research year of 1969-1970, fell into two major groups: volunteers, mainly recruited through the sponsoring family service agency, who were women usually of middle-class income and college education; and paid interveners, women who were formerly mother-participants in the Program and were always of low-income and less than college education. As noted above, preliminary results for 1968-1969 indicate that the group of children visited by these non-social worker interveners achieved a similar mean post-test IQ, about 101, as the group exposed to the Program in the first year. Thus the Mother-Child Home Program was demonstrated to be not only effective but practicable and flexible in terms of utilization of a variety of personnel both less expensive and more readily available than trained social workers.

As indicated above, the social workers during the first year of research rated the children after each Home Session in categories of behavior judged to be verbal behavior or closely related to verbal behavior. There were eleven of these: verbalizes information, non-verbal communication of information, responds verbally, speaks, demonstrates adequate concentration, shows divergence, shows positive motivation, manipulates toy, interacts socially, shows interest in book and accepts toy introduced. Like the categories for the mother and Toy Demonstrator, these were rated on a scale from one (not present) to four (markedly present) for every session.

When the group was divided, at the 17 point mean gain in IQ, into High gainers and low gainers, no statistically significant difference was found between them on the category ratings. But when the frequency of observed behavior was scrutinized on the 59 subcategories of the 11 larger categories, an interesting dichotomy began to emerge. By inspection, the children's performance throughout the intervention on 24 out of the 59 subcategories seemed to show marked differences between two groups of subjects. More systematic data analysis confirmed that the 33 children fell into two uneven groups in respect to their performance on 17 out of the 24 subcategories: a group of 7 lagged significantly behind a group of 26 in the frequency of their performance on these 24 subcategories. And it was this same group of 7 which lagged behind the 26 other children in their IQ gains and were indeed the 7 children at the lowest end of the "gains" list. Three had actually lost 5 to 7 IQ points since the pre-test eight months before, and four had the lowest IQ gains in the total group, from 6 to 8 points. Thus children whose gains ranged from -7 to 8 were differentiated from the rest and were labeled (for this report) Low Gainers. Children who made gains of from 9 to 33 points received approximately the same number of checks throughout the intervention for most subcategories of verbally linked behavior. But out of the 24 such subcategories tested for statistical significance, the mean frequency of checks, or observations, on 17 subcategories was significantly greater for this group, labeled for this report as High Gainers, than for the lowest IQ gainers (see Table II).

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TABLE II

SIGNIFICANTLY DIFFERING VERBALLY RELATED BEHAVIOR OF LOW AND HIGH GAINERS*

Verbally Related Behavior	Mean Low Gainers (N=7)	Mean High Gainers (N=26)	Difference High & Low Gainers t	p**
Questions	5.57	15.96	2.67	.01
Answers	14.57	24.46	3.01	.01
Initiates conversation	5.71	15.58	2.35	.05
Converses	4.51	14.23	1.89	.05
Verbalizes to book	7.29	11.85	2.72	.01
Associates to book	2.43	8.08	2.87	.01
Plays with VISM	12.86	22.69	3.00	.01
Cooperates	14.71	25.46	3.27	.01
Solitary play	13.86	6.58	3.45	.01
Helps	4.57	14.65	2.48	.01
Initiates activities	7.57	17.27	2.47	.01
Complies	14.43	22.35	2.84	.01
Verbalizes relationships	3.29	8.42	2.04	.05
Shifts attention appropriately	18.86	25.96	2.18	.05
Demonstrates joy	7.57	14.81	1.97	.05
Demonstrates pleasure	18.14	25.23	2.35	.05
Verbalizes pleasure	3.00	6.69	1.79	.05

*On Stanford-Binet Intelligence Scale. "Low Gain" = IQ change score of -7 to 8. "High Gain" = IQ change score of 9 to 33.

** One tailed test.

The areas in which these Low Gainers were thus deficient will probably not be surprising to the group assembled here. They were limited not only in asking questions and initiating conversations, but in answering and generally conversing. They comparatively seldom associated verbally to books read to them, or even verbalized more briefly. Consistent with the comparative immaturity thus suggested, these children also behaved on a lower developmental level than the others: they tended much less than the other group to play with the VISTA, were less cooperative, played more alone, and tended not to be helpful in setting up or removing materials. Perhaps less obviously ascribable to the immaturity was their relative reluctance to initiate activities, or even to comply with suggestions. They did less verbalizing of relationships, showed difficulty in shifting their attention appropriately from one activity to another. Most striking, in a cognitive intervention program constructed around positive affective factors (or fun), these were children who showed less joy in the sessions than the other group, and showed and verbalized less pleasure during the Home Sessions.

Thus the group of seven children at the lowest end of the range of IQ gain were identified not only by their relative inability to profit cognitively in one year from the Mother-Child Home Program but by a common pattern of verbally related behavior within the intervention itself. The pattern seems to be characterized by social and cognitive immaturity and by a relatively frequent negative affective tone, which perhaps we may venture to call an absence of active happiness in the sessions, as compared to the rest of the 33 children. An examination into the lives of these children suggests that six of the seven were indeed too burdened by their private miseries to enjoy the Home Sessions to the full. But the resemblance stops there; although related by a thread of unhappiness in family relationships, the causes of the difficulties were idiosyncratic, as some representative of these "lowest" gainers will illustrate:

AMY

This two year old, who looked bewildered and distracted on pre-test in 1967, when her initial IQ was 93, lost seven IQ points after one year of intervention, and an additional three points after another year of minimal intervention in 1968-1969 (seven VISIT delivered to the mother over seven months). She was described by her social worker-Toy Demonstrator as a hyperactive, distractible child whose eyes were crossed. She was unable to concentrate, to play or share with others, and presented a serious problem in management to her mother. She was the youngest of five children in an intact family living in an exceptionally well cared for apartment. One sister, aged three, was also in the Program, starting with an almost identical IQ of 94 but ending with a 26 point gain after one year. The sister was an alert, goal and people oriented child, in dramatic contrast to Amy. Shortly before the end of the intervention, the mother took a full-time unskilled but satisfying job, and not only terminated the intervention but placed the sister in a good day care center and Amy (too young for day care) with a local baby sitter who also cared for many other children. The sister adjusted well to the new regime, but Amy's behavior became even more disorganized and harder to control as she grew larger and stronger. At post-test, at the end of the first year of intervention, the psychologist noted that Amy was "hyperactive but contained by her mother's quick firmness and threat of hitting. She seems to use her left eye only and orients herself in that direction. She confused personal pronouns ('she' for 'I'), shows marked perseveration and poor pronunciation of words. She is moderately interested in the test material but must be constantly urged and called back to attention."

BRENDA

Brenda, another two year old, had an IQ of 94 on pretest in 1967 and was described at that time by the psychologist as "silent, negative. Seems to be a very angry child; she cooperates on the Peabody only when encouraged to 'hit' the pictures, which she does very intensely. Impression is of potentially higher IQ." During the first year of intervention Brenda gained seven IQ points, but after another year of minimal intervention (seven VIBM delivered to mother over seven months), she had lost not only this gain but three additional IQ points, so that her most recent IQ is 91. She was the second youngest of five children, the oldest of whom was eight. The mother was only 22 years old, the father ten years older. The mother's losing struggle with so much premature responsibility could be seen in the marked physical neglect of environment and children and in the social worker-Toy Demonstrator's note that she "is very harsh with the children, she has very little sense of humor, and during the sessions, which took place in the living room, she made very little effort to move even a rag or wet diaper so that Toy Demonstrator had room to sit down near her and Brenda to hold the session." Her poor motivation for the Program was also seen in broken appointments. Brenda's little sister was born early in the intervention; and at about mid-intervention, her mother was suddenly jailed for assault and battery. An aunt took charge of the home and there was an immediate dramatic change to neatness and order. She also substituted for the mother in Program Home Sessions and seemed to relate well to Brenda. But Brenda was obviously upset by her mother's absence -- regressed to wetting and needing diapers, wanted a bottle, was negative and difficult to manage. Yet she continued to show flashes of great interest in the Home Sessions, ingenuity in motor tasks, and several instances of efficacy. The social worker-Toy Demonstrator's impression during 1967-1968 was of very good innate intelligence, not fully reflected in her IQ.

CHESTER

Chester entered the Program at two years, in 1968, with an IQ of 92. By the Program's end, seven months later, his IQ was 88, a loss of four points. Although he had only two siblings, both younger than himself, two or three young cousins were usually present at Home Sessions. No father was in the home. In many Home Sessions, the mother conveyed a general impression of warmth and interest in interacting with Chester, but her behavior was erratic from week to week both to Chester and to the Program. At times she cooperated fully in keeping appointments, interacted in a loving and understanding manner with Chester, and order was apparent in the household. But almost as frequently, she seemed to withdraw from the children and household, visiting with her own friends, to the point at least once of dangerous neglect (the children found alone by the Volunteer-Toy Demonstrator, huddling naked under a blanket, with the kitchen oven burners lit). The supervising social worker, from direct contact, judged the mother's ego strength to be slight and suggested that she was seriously handicapped by feelings of depression and hopelessness.

At Final Interview Chester's mother indicated her wish to continue with the Program for a second year and will be given the opportunity, if she wishes, for family counseling during Chester's second year in the Program, from October 1969 to May 1970.* Her need for emotional support seemed highlighted by her reply to Final Interview questions about ideal characteristics of Toy Demonstrators that although a Toy Demonstrator should be "friendly but not too warm" to the child, she should be "very friendly and warm" to the child's mother.

*Family counseling is a new intervention variable available in 1969-1970 to dyads in their second year of the Program, introduced to study the effect on IQ of combining affective with cognitive intervention.

COMMENTS ON VERY LOW GAINERS (AMY, BRENDA, AND CHESTER)

These brief case histories give the unhappy flavor of the lives of six of the seven children who benefited little or not at all from the Program. It seems clear that each child described here as representative of the six was surrounded by a cluster of negative factors, affective and/or other, which reinforced each other to impede the child's intellectual progress. While for each child there was perhaps a central major negative variable (Amy's probable neurological vulnerability, Brenda's sudden separation from her mother, Chester's experience with his mother's inconsistency), one cannot fully estimate how much the child was affected by these alone and how much by these variables in combination with others.

That seventh low gaining child? A two year old, John had a gain of only six points but demonstrated a pattern of verbally related behavior in Home Sessions similar to that of the High Gainers. His family life seemed unusually happy and stable, his three year old sister gained 22 IQ points, and he himself seemed to be a cheerful, well-adjusted little boy. Either the post-test results were unreliable, (and his Home Session verbal behavior a better predictor of his cognitive status), or he formed a subgroup of one Low Gainer not handicapped by obvious personal or family unhappiness. A follow-up study of this child will probably tell the tale.

EXTREMELY HIGH GAINERS

Although the highest gainers were not identified clearly by their verbally related Home Session behavior, chiefly because the amount of this behavior was similar for the whole group gaining more than 9 IQ points, clusters of positive factors seemed linked to the extremely high performances of some of the highest gainers, just as negative clusters were associated with the very low performance of most of the children at the opposite end of the range.

DONALD

Donald was a small, shy two year old when he entered the Program in 1967 with an IQ of 86. By the end of the 1967-1968 intervention, his IQ had risen 32 points, to 118. After minimal intervention in 1968-1969 (four Home Sessions and seven VISM over a seven month period) he made a further gain of 11 points, bringing him to an IQ of 129. He was the youngest of eight children (the oldest was 13) in an intact home where the impression was one of general warmth and mutual support among all family members, particularly among the siblings. The mother was initially guarded and skeptical about the worth of the Program, a feeling that was reinforced by Donald's almost complete lack of verbalization during Home Sessions. But she cooperated conscientiously, and by the end of the first year, having seen her "baby" grow visibly in competence and independence, she was enthusiastic, and so apparently was the rest of the family. The older brothers and sisters were playing and interacting verbally with Donald between sessions, and there was a marked increase in the father's involvement with the child around the VISM. The general family support for Donald's verbal interaction was so strong that father and siblings continued it almost independent of the mother when the latter became ill during Donald's second year of (minimal) intervention and was hospitalized away from home a large part of the time. The social worker-Toy Demonstrator noted that he continued in his four second year Home Sessions his first year pattern of almost complete silence, accompanied by a remarkably intense concentration on the activities of the Session. Reports indicated that his behavior outside of Sessions with other children was lively, verbal, and joyous.

EARL

Earl entered the Program when he was two years old, the youngest of four boys (oldest 7) but in almost a twin relationship with a young male cousin who was temporarily in the charge of Earl's mother and who was in the Program along with Earl during 1967-1968. The mother worked part-time as a domestic and at the same time, with the active cooperation of her husband, maintained a home and a family life that were outstanding for their warmth, harmony, order and attempt at provision of intellectual stimulation. She had participated, with the sibling next oldest to Earl, in the brief pilot project for the Program and, since a toy chest had not been assigned in the pilot project, had kept the relatively few VISM he received carefully in a closet, to be brought out to be played with on special occasions. She cooperated enthusiastically with the Program from the beginning, quickly learned the verbal interaction techniques, and practiced them with both children in and between sessions. Siblings and father were also actively involved between sessions, and occasionally in the Home Sessions themselves. Earl started the Program with an IQ of 77 and gained 29 IQ points during his first year in it, so that his IQ after one year of intervention was 106. The latter arose still further after a second year of intervention, which consisted of a minimal program of delivering seven VISM to his mother. His IQ at the end of the second year was 117. This child had made a total gain of 40 IQ points during his two years of intensive and minimal contact with the Mother-Child Home Program.

FLORA

Flora was a solemn, shy two year old, the youngest of eight children, the oldest of whom was ten. The family was supported partly by Welfare, partly by the father, who was out of the home for part of the intervention period. The mother applied the same competence and marked ego strengths she used in managing her well organized family and home to her initially unenthusiastic participation in the Program. She demonstrated from the beginning considerable general positive interaction with Flora, and by the end of Flora's first year in the Program (1968-1969), the amount of her utilization of the Program and of her verbal interaction with her child in Home Sessions had changed from being rated "moderate" to a rating of "large". Flora's siblings also played and interacted verbally with her very often between sessions. For her part, Flora was a rather silent, serious child during the Home Sessions, sometimes hard to involve in play, sometimes wholly captured by the VISM and by the verbal interaction techniques of mother and the volunteer Toy Demonstrator. At the end of the first year, the mother showed much thought in her expressed understanding of the goals of the Program, spontaneously commenting in the Final Interview that these were "to alert the child to her surroundings, to give her an early start in thinking and perceiving." She was also able to verbalize in considerable detail her correct impression of what activities should be carried on with Flora between sessions. She has become a paid Toy Demonstrator in 1969-1970.

Flora made a gain of 24 IQ points in the first year of the Program, starting with an IQ of 89 and ending with an IQ of 113. She is now enrolled for her second year in the Program, 1969-1970, and will be retested for cognitive gain in May, 1970.

COMMENTS ON EXTREMELY HIGH GAINERS (DONALD, EARL, FLORA)

A cheerful motif runs through all of these representative descriptions of children who made very high gains in the Program. Just as for the low gaining children, each child seems to be surrounded by a cluster of factors relevant to the amount of his cognitive gain in the Program -- only this time the cluster is a positive one, with benign factors reinforcing each other to utilize the stimulus of the Mother-Child Home Program in fostering the child's cognitive growth. Paradoxically, it is a little more difficult to pick out discrete benign variables relating to the latter than to guess at the specific negative etiology in the earlier cases. All three children share such variables as marked ego strength in the mothers, an impression of warmth and harmony in the family, and a large number of loving and supportive older siblings. But before the Verbal Interaction Project draws up too hastily the indicated prescription for Optimum Nurture of Intellect, let us consider the cases of two other high gainers, George and Harriet.

HARRIET

Harriet was a tiny two year old who began the Program in 1967 with an IQ of 80 and increased it by 29 points to an IQ of 109 at the end of the first intervention year in 1968. When she was re-tested in May 1969 after minimal intervention in the second year (seven VISM delivered to her mother over seven months), she had lost 4 IQ points, still achieving an IQ of 105. During full intervention in 1967-1968 her mother's expressed passivity during Home Sessions was extreme to the point of the mother's actually falling asleep several times during the Sessions, not surprising in view of the mother's full time night job as an aide in a local hospital. The mother's organization of home and family life seemed somewhat chaotic, and although there was only one older sibling (and one younger one born during the Program), family cohesiveness and attention to Harriet were apparently minimal. The father was living in the home. Most of Harriet's interaction in Home Sessions was with the social worker-Toy Demonstrator, who found her to be alert, interested

in the materials, and verbally responsive. She noted that Harriet was given and assumed an unusual amount of responsibility for such tasks as dressing, finding her clothes, and simple jobs for her mother, apparently because of the mother's passivity, depression, and probably exhaustion. The impression was left that Harriet's large cognitive gains were the result of unknown idiosyncratic factors plus the child's own strong "effectance"* drive combined with the social worker-Toy Demonstrator's interaction with her and with the effects of her mother's participation in the Program, however minimal.

GEORGE

At his pre-test session prior to his entrance into the Program in 1967, two year old George was described as "active, vocal, imaginative, with good motor skills." His IQ then was 92, and it arose 20 points to 112 after the first year of intervention. Neither the course of intervention nor the mother's cooperation were considered optimal, to say the least. The mother frequently failed appointments, did not reply to the social worker-Toy Demonstrator's written messages attempting to arrange new appointments, seemed punitive or indifferent to George (as well as to his four older siblings) and began to leave the responsibility for Home Sessions to George's father, who was only irregularly available. Neighbors conveyed to the Toy Demonstrator their concern and anger on the children's behalf for what was obviously rather serious physical neglect. The parents' participation in Home Sessions was minimal, when indeed the latter could be arranged at all. As with Harriet,

*To use Robert White's label for ego energy which drives humans (and animals) to have an effect on the environment through inherently satisfying activity (White, 1963).

the amount of the Toy Demonstrator's direct activity in Home Sessions remained large because of the parents' resistance to being drawn into the major responsibility for verbal interaction with the child. The mother's report as to the amount of inter-session family verbal interaction with George was vague. Toward the end of the intervention period she withdrew altogether, and it was possible only to deliver the remaining VISM to George, who entered a baby sitting arrangement with an aunt when both parents began vocational training. On post-test in 1968 he was noted to be restless and rather provocative but was spontaneously verbal, captured by the test materials and gave his full attention once this occured. After a second year of minimal intervention (delivery of seven VISM over seven months to his mother), his IQ fell ten points, to 102. There had been no change in the rather disorganized family situation. George's mother had talked freely about her severe marital problems, including a legal separation, and these apparently continued.

COMMENTS ON AN ENIGMA (GEORGE, HARRIET, AND BRENDA)

The stories of George and Harriet hint that a large IQ gain associated with the Mother-Child Home Program may in some cases be linked as much to the innate strength of the child, the flexibility of the intervention, and unknown factors, as to strengths residing originally within the family itself. In regard to the Program flexibility, the amount of activity of the individual intervener is adapted, within the Home Sessions, to the amount of participation the family, and especially the mother, is willing or able to give. In assessing the responsibility for achieving high gains in children exposed to the Program, we have become aware of a continuum which extends from the mother whose cooperation is almost entirely limited to permitting Home Sessions and being present at them

(a very substantial contribution in some families which have previously resisted any aid from local social agencies), to the mother at the opposite end of the continuum who from the first responds to every cue offered by the Program and needs only the VISM and the minimal demonstration of verbal interaction techniques by the intervener. But why did two children at the lower end of this continuum -- George and Brenda, the latter described earlier as a Low Gainer -- produce such different IQ gains after exposure to the Program? That is what used to be called, in another generation, the $64 question. Answer: I don't know. The one thing that seems certain about the dramatically differing effect of the Program on two children with similarly negative backgrounds is that it seems to provide still another clear instance of the failure of the cookie cutter approach.

SUMMARY OF FINDINGS

We have found in a hunt for factors associated with the wide variability of IQ change in response to our experiment with the Mother-Child Home Program, that seven children who made little or no cognitive gain in the Program could be significantly distinguished from the more successful subjects by many details of their verbally related behavior during Home Sessions. When individual and family characteristics of these children with change scores from -7 to 8, were compared with those of children who made high IQ gains from 9 to 33, the groups again seemed to be differentiated, not by single variables, but by clusters of negative factors (for low gainers) or positive factors (for high gainers). Yet even this general grouping of factors could not be applied to at least one case (George) of moderately high gain, and could be applied only with some imagination to a case of very high gain, Harriet. The difficulties of applying generalizations to specific cases (the "cookie cutter" approach) are once more illustrated.

CONCLUSIONS

The need still continues, however, to try to identify the factors, beside the Program itself, which are associated with high and low cognitive gain apparently resulting from the intervention. We suspect that some illumination may come from a more systematic investigation of affective variables which may be linked to the child's intellectual growth in the Program, and from study of the children's future cognitive gain retention. Therefore, in regard to the latter, we have already begun a longitudinal follow-up study of the amount and kind of intelligence demonstrated by children formerly exposed to the Program and of their elementary school achievement. As to the influence of affective variables, we plan in 1970-1971 to incorporate an investigation of the relationship to cognitive gain in the Mother-Child Home Program of such interpersonal and intrapersonal emotional factors as mother's child rearing attitudes, her self-esteem, and the child's relationship to father and siblings.

But we also suspect that, however refined our method, and however great the number of idiosyncratic factors we are able to identify by the data finally analyzed, there will always be an irreducible few individuals who will not be explained. Rather than construct new theories, tailor made for the mavericks, let us relish the surprises inherent in each new human being we encounter in our research and cherish the humanness that occasionally does not yield its mysteries to the empirical investigator.

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